Appln. No.: 10/593,832

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the

application:

LISTING OF CLAIMS:

1. (currently amended): A method for producing a titanium-containing perovskite

compound that has ferroelectricity, characterized in that the method comprises a step of reacting

titanium oxide produced through a vapor-phase method with at least one element selected from a

group of alkaline earth metal compound and Pb compound in an alkaline solution, wherein when

the titanium oxide contains rutile titanium oxide, the content of anatase titanium oxide is 20 to

100 mass%.

2. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 1, wherein primary particles of the titanium-containing perovskite compound

have a diameter (D1) that is 50 to 200% the size of primary particles of the titanium oxide

serving as a starting material, the size (D1) being determined by converting the specific surface

area (S) of the particles obtained by the BET method to the total surface area of spheres in

accordance with the following equation (1):

 $D1 = 6/\rho S$ (1)

wherein $\boldsymbol{\rho}$ represents a density of the particles and S represents a BET specific surface

area.

Appln. No.: 10/593,832

3. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 1, using ultrafine particles of titanium oxide having a BET specific surface area

of 3 to $200 \text{ m}^2/\text{ g}$.

4. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 1, using the titanium oxide produced by oxidizing titanium tetrachloride at high

temperature by use of an oxidizing gas.

5. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 4, using the titanium oxide produced by a vapor-phase method is produced by

respectively introducing a titanium tetrachloride-containing gas and an oxidizing gas which are

heated in advance to 500°C or higher into a reaction tube at a flow rate of 10 m/sec or more.

6. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 5, using the titanium oxide produced by retaining the titanium tetrachloride-

containing gas and the oxidizing gas in the reaction tube for reaction for one second or shorter

under a high-temperature condition higher than 600°C.

7. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 6, using the titanium oxide produced under a condition of an average gas flow

rate in the reaction tube of 5 m/sec or more.

Appln. No.: 10/593,832

8. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 1, using the titanium oxide produced by a vapor-phase method is produced by

introducing the preheated titanium tetrachloride-containing gas and oxidizing gas into the

reaction tube in such a manner that turbulence is generated in the reaction tube.

9. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 8, using the titanium oxide produced by introducing the titanium tetrachloride-

containing gas and the oxidizing gas into the reaction tube through a coaxial parallel flow nozzle

and the inner tube of the coaxial parallel flow nozzle has an inside diameter of 50 mm or less.

10. (previously presented): The method for producing a titanium-containing perovskite

compound as claimed in claim 4, wherein the titanium-tetrachloride-containing gas has a

titanium tetrachloride content of 10 to 100%.

11. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 5, wherein each of the titanium tetrachloride-containing gas and the oxidizing

gas is heated in advance at 800°C or higher.

12. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 1, wherein the titanium oxide produced by a vapor-phase method has a mean

particle diameter at a 90% cumulative weight on the particle size distribution curve (D₉₀) of 2.2

μm or less.

Appln. No.: 10/593,832

13. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 1, wherein the titanium oxide produced through a vapor-phase method has a distribution constant n. as calculated from the following Rosin-Rammler equation (2), of 1.7 or

more:

 $R = 100 \exp(-bD^n)$ (2)

wherein D is a particle diameter; R is the percentage of the number of particles larger

than D (particle diameter) with respect to the total number of particles; n is a distribution

constant; and b is a reciprocal of particle characteristic constant.

14. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 1, wherein the titanium oxide produced by a vapor-phase method contains

anatase-crystal-form titanium oxide.

15. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 1, using an alkaline solution in which a basic compound exists.

16. (original): The method for producing a titanium-containing perovskite compound as

claimed in claim 15, wherein the basic compound is selected from ammonium, organic amine

and hydroxide of ammonium salt.

17. to 32 (canceled).

Attorney Docket No.: Q80768

AMENDMENT UNDER 37 C.F.R. § 1.111

Appln. No.: 10/593,832

33. (currently amended): A method for producing a titanium-containing perovskite compound that has ferroelectricity, characterized in that the method comprises a step of reacting titanium oxide produced through a vapor-phase method with at least one element selected from a group of alkaline earth metal compound and Pb compound in an alkaline solution, wherein the titanium oxide contains at least 80 mass% of anatase titanium oxide.